AMENDMENTS TO THE CLAIMS

1. (Currently amended) A coated implant for in vivo-anchoring to a biological tissue or another implant, which coated implant comprises an implant having a pre-treated surface and on said pre-treated surface one or more layers of mainly non-hydrated chemically bonded ceramic material, characterised in that

each layer of said ceramic material independently comprises a first binder phase selected from the group consisting of aluminates, silicates, phosphates, sulphates and combinations thereof, and that said ceramic material is chemically and/or mechanically bound to said implant, and in that

the coated implant additionally is coated with a ceramic paste comprising a powdered calcium-based binder of aluminate and/or silica and a hydration liquid.

2. (Original) A coated implant according to claim 1, characterised in that the first binder phase comprises cations selected from the group consisting of Ca, Sr and Ba.

3. (Original) A coated implant according to claim 2, characterised in that the cations are Ca-cations.

4. (Original) A coated implant according to claim 3, characterized in that the first binder phase comprises calcium aluminates.

5. (Original) A coated implant according to claim 4, characterized in that the first binder phase comprises one or more of the phases $3CaO{\cdot}Al_2O_3$, $12CaO{\cdot}7Al_2O_3$ $CaO{\cdot}Al_2O_3$, $CaO{\cdot}Al_2O_3$ and $CaO{\cdot}6Al_2O_3$.

6. (Currently amended) A coated implant according to claim 1, characterised in that the ceramic material further comprises water-soluble phosphate or a phase ~~(such as a phophate salt)~~ that has the capacity to form water-soluble phosphate.

7. (Previously presented) A coated implant according to claim 1, characterised in that said one or more non-hydrated layers have a porosity below 50%.

8. (Previously presented) A coated implant according to claim 1, characterised in that the surface roughness of the pre-treated surface of the implant has a Ra-value of less than 10 μm, but not smaller than 0.5 μm.

9. (Currently amended) A coated implant according to claim 1, characterised in that the number of layers of the coating is 1-5, in addition to the paste layer.

10. (Previously presented) A coated implant according to claim 1, characterised in that an innermost layer has a thickness in the interval from nanometer level to less than 10 μm.

11. (Currently amended) A coated implant according to claim 1, characterised in that an outermost layer beneath the paste has a surface treated to a surface roughness of Ra<20 μm, but not smaller than 0.5 μm.

12. (Previously presented) A coated implant according to claim 1, characterised in that it comprises at least two layers and that each layer outside the innermost one independently has a thickness of less than 50 μm, but not smaller than 5 μm.

13. (Currently amended) A coated implant according to claim 1, characterised in that said implant is a medical, orthopaedic or dental implant~~, such as an artificial orthopaedic device, a spinal implant, a joint implant, an attachment element, a bone nail, a bone screw, and a bone reinforcement plate~~.

14. (Previously presented) A coated implant according to claim 1, characterised in that said implant is of a ceramic, metallic or polymeric material.

15. (Original) A coated implant according to claim 14, characterised in that said implant material has been selected from titanium, stainless steels, alumina, zirconia and medical grade plastics.

16. (Previously presented) A coated implant according to claim 1, characterised in that the implant surface is oxidized.

17. (Original) A coated implant according to claim 16, characterised in that said oxide is a double oxide of titanate, silicate or aluminate type.

18. (Previously presented) A coated implant according to claim 1, characterised in that said mechanical binding to the implant is achieved by sub-micron size crystallites of hydrates precipitated on the surface of said implant.

19. (Original) A coated implant according to claim 18, characterised in that the crystallite size is less than 100 μm.

20. (Previously presented) A coated implant according to claim 1, characterised in that the powdered mainly non-hydrated ceramic material has a particle size of 0.1 to 20 μm.

21. (Withdrawn) A method of manufacturing a coated implant according to claim 1, which method comprises the steps of:

-pre-treating the surface of an implant,

-applying on said pre-treated surface one or more layers of mainly powdered non-hydrated ceramic material, which layers independently comprises a first binder phase selected from the group consisting of aluminates, silicates, phosphates, sulphates and combinations thereof, and

-optionally pre-hydrating said ceramic material by contacting it with a curing liquid or body fluid,

-thereby forming a chemical and/or mechanical bond between the ceramic material and said implant.

22. (Withdrawn) A method according to claim 21, characterised in that said pre-treatment is selected from a group consisting of oxidation including low-temperature oxidation, thermal treatment including solid state diffusion and ion bombarding, etching including the use of salt melts, calcination, sand-blasting and grinding.

23. (Withdrawn) A method according to claim 21, characterised in that the surface roughness of the implant after pre-treatment has a Ra-value of less than 10μm, but not smaller than 0.5 μm.

24. (Withdrawn) A method according to claim 23, characterised in that the innermost layer of the coating is applied on the implant surface by any of the following techniques: thermal spraying, flame spraying, Electro Deposition Spraying (EDS), plasma spraying, dipping and spin coating.

25. (Withdrawn) A method according to claim 23, characterised in that when the surface roughness of the implant has a Ra-value of less than 1μm, but not smaller than 0.05 μm, the innermost layer of the coating is applied on the implant surface by any of the following techniques: Chemical Vapor Deposition (CVD), Physical Vapor Deposition (PVD), laser techniques including laser cladding, Electrolytic Deposition (ED), and sol-gel techniques.

26. (Withdrawn) A method according to any of claims 25, characterised in that when the coating only comprises one layer, said layer is applied using Physical Vapor Deposition (PVD).

27. (Withdrawn) A method according to claim 21, characterised in that said one or more layers of the coating are thinned, preferably by a process selected from the group consisting of grinding, sand blasting, dry etching and chemical treatment including dissolution.

28. (Withdrawn) A method according to claim 27, characterised in that in connection with said thinning, a partial densification of said one or more layers is performed, preferably by drying up of particles and precipitation including sol-gel techniques.

29. (Withdrawn) A method according to claim 21, characterised in that the pre-hydration is performed by dipping, spraying, spin coating or tape casting the coated implant in/with such an additional hydration liquid.

30. (Withdrawn) A method according to claim 21, characterised in that the powdered, mainly non-hydrated ceramic material, has a particle size of 0.1 to 20 μm.

31. (Withdrawn) A ceramic paste, characterised in that it comprises a powdered calcium-based binder of aluminate and/or silicate and a hydration liquid.

32. (Withdrawn) A ceramic paste according to claim 31, characterised in that it has the form of granules of a size below 1 mm and a granule compaction density above 35 %.

33. (Withdrawn) A ceramic paste according to claim 32, characterised in that the granules have a mean size of at least 30 μm, but 250 μm at the most.

34. (Withdrawn) A ceramic paste according to claim 31, characterised in that it comprises an organic additive, preferably a hydrophilic polyacrylic and/or polycarboxylate compound.

35. (Withdrawn) An implantation kit for in vivo-anchoring an implant to a biological tissue or another implant, comprising the coated implant according to claim 1 and optionally a curing liquid capable of hydrating the binder phase of the coated implant and a paste according to claim 31, wherein the ceramic powder and hydration liquid of the paste are kept separately.

36. (New) A coated implant according to claim 6, wherein the ceramic material further comprises a phosphate salt.

37. (New) A coated implant according to claim 13, wherein said implant is an artificial orthopaedic device, a spinal implant, a joint implant, an attachment element, a bone nail, a bone screw, or a bone reinforcement plate.